WHAT IS CLAIMED IS:

1. A semiconductor device, comprising:

a capacitor provided on a supporting substrate having an integrated circuit thereon and including a lower electrode, a dielectric film, and an upper electrode;

a first interlayer insulating film provided so as to cover the capacitor;

a first interconnect selectively provided on the first interlayer insulating film and electrically connected to the integrated circuit and the capacitor through a first contact hole formed in the first interlayer insulating film;

a second interlayer insulating film formed of ozone TEOS and provided so as to cover the first interconnect;

a second interconnect selectively provided on the second interlayer insulating film and electrically connected to the first interconnect through a second contact hole formed in the second interlayer insulating film; and

a passivation layer provided so as to cover the second interconnect.

2. A semiconductor device according to claim 1, wherein the dielectric film is formed from either a dielectric material having a high dielectric constant or a ferroelectric material.

3. A semiconductor device according to claim 1, wherein the second interconnect is provided on the second interlayer insulating film so as to cover at least a part of

the capacitor.

4. A semiconductor device according to claim 1, wherein the passivation layer is formed from a laminate including a silicon oxide film and a silicon nitride film.

5. A semiconductor device according to claim 1, further comprising a hydrogen supplying layer provided between the first interconnect and the second interlayer insulating film excluding an area in which the capacitor is provided.

6. A semiconductor device according to claim 1, wherein the first interconnect is formed from a laminate including titanium, titanium nitride, aluminum and titanium nitride; a laminate including titanium, titanium nitride and aluminum; a laminate including titanium, titanium tungsten, aluminum and titanium tungsten; or a laminate including titanium, titanium tungsten and aluminum.

7. A semiconductor device according to claim 1, wherein a Si-OH bond absorption coefficient of the second interlayer insulating film at a wavelength corresponding to 3450 cm^{-1} is 800 cm^{-1} or less.

8. A semiconductor device according to claim 1, wherein the second interlayer insulating film has a tensile stress of 1×10^7 dyn/cm^2 to 3×10^9 dyn/cm^2 inclusive.

9. A semiconductor device according to claim 1, wherein the second interlayer insulating film has a thickness of 0.3 μm to 1 μm inclusive.

10. A semiconductor device according to claim 1, wherein the second interconnect is formed from a laminate including titanium, aluminum and titanium nitride; a laminate including titanium and aluminum; or a laminate including titanium, aluminum and titanium tungsten.

11. A method for fabricating a semiconductor device, comprising the steps of:

sequentially forming a lower electrode, a dielectric film, and an upper electrode on a supporting substrate having an integrated circuit, thereby forming a capacitor;

forming a first interlayer insulating film so as to cover the capacitor;

forming a first contact hole in the first interlayer insulating film;

selectively forming a first interconnect in the first contact hole and on a prescribed area of the first interlayer insulating film so as to be electrically connected to the integrated circuit and the capacitor;

forming a second interlayer insulating film of ozone TEOS so as to cover the first interconnect;

subjecting the second interconnect to a first thermal treatment;

forming a second contact hole in the second interlayer insulating film;

selectively forming a second interconnect in the second contact hole and on a prescribed area of the second interlayer insulating film so as to be electrically connected to the first interconnect;

subjecting the second interconnect to a second thermal treatment; and

forming a passivation layer so as to cover the

second interconnect.

12. A method for fabricating a semiconductor device according to claim 11, wherein the dielectric film is formed from either a dielectric material having a high dielectric constant or a ferroelectric material.

13. A method for fabricating a semiconductor device according to claim 11, further comprising the step of etching back the second interlayer insulating film using the second interconnect as a mask to such an extent as to almost expose the first interconnect.

14. A method for fabricating a semiconductor device according to claim 11, wherein the step of forming the second interconnect includes the step of forming the second interconnect so as to cover at least a part of the capacitor.

15. A method for fabricating a semiconductor device according to claim 11, wherein:

the passivation layer is formed of a laminate including a silicon oxide film and a silicon nitride film, and

the silicon oxide film is formed by normal-pressure CVD, low-pressure CVD or plasma CVD, with using silane, disilane or ozone TEOS, so as to have a tensile stress.

16. A method for fabricating a semiconductor device according to claim 11, further comprising the steps of:

after the first interconnect is formed, forming a hydrogen supplying layer on the first interconnect

excluding an area where the capacitor is provided; and performing a third thermal treatment.

17. A method for fabricating a semiconductor device according to claim 16, wherein the hydrogen supplying layer is formed from either silicon nitride or silicon nitride oxide by plasma CVD.

18. A method for fabricating a semiconductor device according to claim 16, wherein the third treatment performed after the formation of hydrogen supplying layer is performed at a temperature in the range of 300°C to 450°C inclusive.

19. A method for fabricating a semiconductor device according to claim 16, wherein the third treatment performed after the formation of the hydrogen supplying layer is performed in an oxygen atmosphere, a nitrogen atmosphere, an argon atmosphere or an atmosphere of a mixed gas thereof.

20. A method for fabricating a semiconductor device according to claim 11, wherein the first interlayer insulating film is formed of silicon oxide by normal-pressure CVD or low-pressure CVD, with using silane, disilane or ozone TEOS.

21. A method for fabricating a semiconductor device according to claim 11, wherein the first interlayer insulating film is formed of phosphorus-doped silicon oxide by normal-pressure CVD or low-pressure CVD.

22. A method for fabricating a semiconductor device according to claim 11, wherein an ozone concentration upon forming the second interlayer insulating film using ozone TEOS is set to be at 5.5% or more.

23. A method for fabricating a semiconductor device according to claim 11, wherein the second interlayer insulating film after being subjected with the first thermal treatment has a tensile stress of 1×10^7 dyn/cm^2 to 2×10^9 dyn/cm^2 inclusive.

24. A method for fabricating a semiconductor device according to claim 11, wherein the first thermal treatment is performed at a temperature in the range of 300°C to 450°C inclusive.

25. A method for fabricating a semiconductor device according to claim 11, wherein the first thermal treatment is performed in an atmosphere containing at least oxygen.

26. A method for fabricating a semiconductor device according to claim 11, wherein the second thermal treatment is performed at a temperature in the range of 300°C to 450°C inclusive.

27. A method for fabricating a semiconductor device according to claim 11, wherein the second thermal treatment is performed in an atmosphere containing at least one of nitrogen, argon and helium.

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